

## Infectious Scleritis Following Extracapsular Cataract Surgery with Trabeculectomy

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### Abstract

We report a case of a 70 year old man who presented with redness, pain and photophobia, fibrinoid aqueous reaction, corneal edema and Choroidal detachment in his only seeing right eye following two years of an uneventful extra capsular cataract extraction and trabeculectomy with Mitomycin C. Treatment with topical antibiotics and steroids were partially effective with a persistent hypotony and choroidals. Bleb exploration revealed multiple scleral abscesses which were drained with surgical debridement of the necrosed areas growing *Pseudomonas* on culture. Patient was then treated with oral ciprofloxacin along with systemic steroids. Patient gained useful vision with complete resolution of choroidals. Infectious scleritis can occur as a late complication of combined surgery, Mitomycin C can be considered as a risk factor. Combined medical and surgical therapy when started in the early hours may result in a favourable outcome.

**Keywords:** Infectious scleritis; Combined Surgery; Choroidal detachment; *Pseudomonas*; Mitomycin C

**Abbreviations:** POAG: Primary open angle glaucoma; AC: Anterior chamber

### Introduction

Infectious scleritis presents as an ulcerated or nonulcerated, inflamed scleral nodule with *Pseudomonas Aeruginosa* (*P. aeruginosa*) being reported as the most common cause [1]. Pterygium surgery with application of mitomycin C has been identified as a common risk factor for infectious Scleritis [2]. There has been a single case report of postoperative necrotizing pseudomonas scleritis after trabeculectomy in the early phase [3]. The clinical outcome is generally poor and most cases required evisceration in the reported series [4].

### Purpose

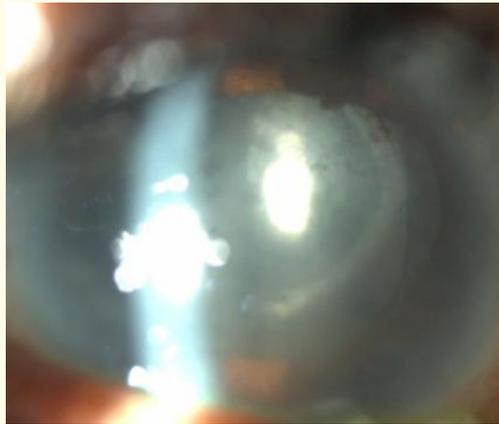
The authors describe a patient who presented with infectious scleritis with multifocal sclera abscesses two years following a Combined surgery (Extra capsular cataract extraction with trabeculectomy with the use of mitomycin C) wherein aggressive treatment with antibiotics initially, followed by surgical drainage of the abscess, resulted in an unexpected successful outcome.

### Case Report

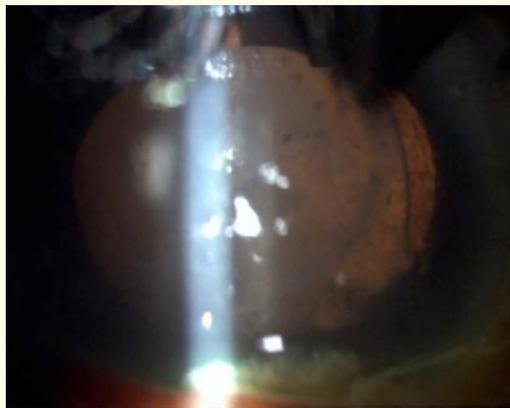
70 year old man underwent combined cataract and glaucoma surgery for brunescent cataract with advanced Primary open angle glaucoma (POAG) in his only seeing right eye. A merocele sponge soaked with mitomycin C (0.2 mg/ml) was applied to the trabeculectomy site for about 2 minutes. Patient was doing well with a postoperative visual acuity of 20/60 and an intraocular pressure 12 mmHg till 02 years of surgery. Two years later, he presented with sudden onset decreased vision and severe pain in his right eye for 4 days. Visual acuity at presentation was Perception of Light present with inaccurate projection of rays in temporal and inferior quadrant. Patient was grossly photophobic with a restriction of extra ocular movements. There was intense circumcorneal and conjunctival congestion with stromal edema limited to the inferior half of the cornea. Anterior chamber (AC) was deep and showed hypo yon with fibrinoid aqueous reaction over the intraocular lens (Figure 1a, 1b). Intraocular pressure was 02 mmHg. Forced siedel's test was negative and an ultrasound

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B scan showed massive choroidals (Figure 2). AC Tap was done which showed few gram positive cocci and Pseudomonas growth on a single media. Patient was treated with topical fortified cefazolin sodium and tobramycin, atropine eye drops, topical steroids along with systemic steroids. Patient showed clinical improvement with resolution of hypopyon but was still having an intraocular pressure of 03 mm Hg with the presence of choroidal detachment till 2 weeks of presentation. The patient was planned for exploration of bleb under local anaesthesia as he was overtly photophobic and not allowing slit lamp examination. On exploration, bleb was functional with no areas of leak and a negative Siedel's. However four scleral abscesses were discovered at the extreme edge of the bleb area. Rest of the bleb was highly vascularised with no infiltration (Figure 3a, 3b). Scleral abscesses were drained with surgical debridement of the underlying necrosed areas. Gram stain of the sclera abscess showed pus cells with gram negative bacilli and few gram positive cocci, with Cultures being positive for P. aeruginosa. The patient was investigated for any systemic associations and had no serologic or clinical evidence of tuberculosis, syphilis or rheumatoid arthritis. Tab. Ciprofloxacin 500 mg bd was added; patient continued on the rest of the treatment and followed up every week. After one month of treatment choroidals started resolving but patient developed a small epithelial defect over the inferior cornea with no infiltrate (Figure 4).



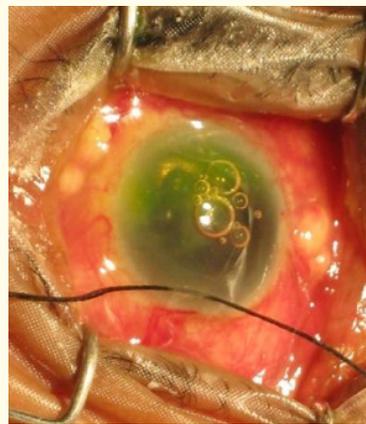
**Figure 1a:** Fibrinous anterior chamber reaction.



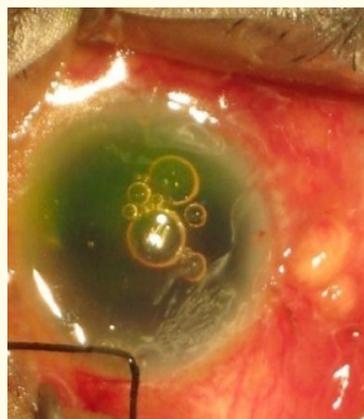
**Figure 1b:** Fibrinous membrane over the IOL.



**Figure 2:** USG B scan showing choroidal detachment.



**Figure 3a:** Sclera abscess located at the extreme edges of the bleb area.

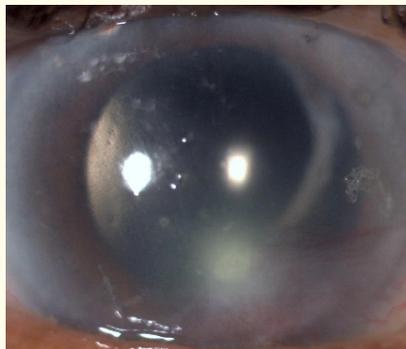


**Figure 3b:** Sclera abscess located at the extreme edges of the bleb area.



**Figure 4:** Clear cornea with epithelial defect inferiorly, No infiltrate.

Topical antibiotics and steroids were tapered off gradually with an increase in frequency of lubricants. Oral Ciprofloxacin was stopped and oral steroids tapered. During the last follow up at two months, visual acuity recorded was 20/200, with total healing of the epithelial defect and a quiet anterior chamber (Figure 5). Intraocular pressure was 10 mm Hg with total resolution of choroidals. Patient was reviewed every 06 months with a tapering dose of oral steroid at 10 mg once daily for 02 months.



**Figure 5:** Scarred cornea inferiorly with a quiet AC.

### Discussion

Infectious scleritis is a devastating ocular disorder with *P. aeruginosa* identified as the most common and destructive organism responsible for this serious condition. A multifocal scleral abscess as pointed by Hsiao, *et al.* [5] represents an intrascleral dissemination of the infectious process [5]. It is not an uncommon presentation with almost 40% of the patients in a series noted to have multiple scleral nodules as a presenting sign [2]. Although most cases of infectious scleritis show low-grade inflammation in the anterior chamber, severe intraocular inflammation occasionally occurs, and results in formation of hypopyon and posterior synechiae. Serious complications like serous retinal or choroidal detachment have also been reported. The destructive nature of the pathogens and the abundance of exotoxins in the infected scleral tissue are the probable elements responsible for the exudative retinal detachment [6,7]. Most of the published reports of infective scleritis have been following Pterygium excision barring a single case report following trabeculectomy in the early postoperative period. This case showed a late presentation with severe manifestations of the disease entity.

The management protocol involves both medical and surgical therapy. Ciprofloxacin, a fluoroquinolone antibiotic drug, has a broad spectrum of activity against the most frequently encountered ocular pathogens and has also been shown to be effective against both amino glycoside-resistant and sensitive strains of *P. aeruginosa*. Lone medical management has however been associated with poor outcomes. In a study by Huang et al among the nine patients treated with medical therapy, two eyes had to be enucleated with only two attaining a visual acuity of  $> = 20/200$  at the end of the follow-up period. On the other hand, seven patients treated with a combined approach (antibiotic therapy and surgical debridement) showed better response with only one patient requiring enucleation for intractable pseudomonal and fungal infection. However the outcome of treatment in this devastating condition is not very encouraging. A literature review of reported cases of infectious keratoscleritis by Reynolds and Alfonso showed that almost 60% of the eyes had eventually undergone evisceration, enucleation, or were left with no light perception in spite of intensive treatment [4]. The poor prognosis associated with infectious scleritis is attributed mainly to the minimal penetration of topical or intravenous antibiotics into the nearly avascular sclera, and possibly, the ability of microbial organisms to reside in deep intrascleral lamellae for long periods without inciting an inflammatory response. Hence early surgical debridement is noted to be beneficial in these patients.

### Conclusion

Infectious scleritis though a rare entity can occur following trabeculectomy with the use of mitomycin C. Hence it should be suspected at the initial presentation to prevent delay in diagnosis and treatment. Early surgical debridement in combination with appropriate antibiotic therapy appears to shorten the course of treatment and also produce a more favourable outcome.

### Acknowledgements

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### Conflicts of interest

None.

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